

Dear Andy:

The Origins Subcommittee met in San Diego on July 26-28, 2004. We met in joint session with the SEUS committee during the afternoon of July 26 and the mornings of July 27 and July 28.

Anne Kinney reported on the overall health of the Astronomy program to our joint session. NASA astronomy program is in the midst of its golden age. With regular access to space for innovative missions, NASA missions are producing superb science that reshapes our view of the universe, alters our understanding of fundamental physics and excites the broad public. The Origins Committee developed our recommendations for the GPRA report that we have presented to the SScAC. These recommendations reflect the vibrancy of the Origins Program.

Eric Smith and Marc Allen discussed the implications of NASA restructuring for the Origins program and the Origins Committee roadmapping efforts. The Origins roadmaps will be closely tied to and potentially merged with the SEUS roadmap.

Michael Moore and Anne Kinney described plans to maximize the science return from Hubble Space Telescope over the next few years including plans to operate the telescope in 2-gyro mode. NASA is now planning to service HST with a robotic servicing mission that will maintain its operability and enhance its capabilities through the addition of new instruments. **We encourage NASA to design the refurbishment mission so that the scientific productivity of HST is maximized.**

Mel Montemerlo reported on his efforts to identify long-term technology needs of the Origins science program. The Aldridge report strongly recommended investing in the NASA long-term technology needs. The committee is concerned that with the disappearance of Code R and Code T focusing on developing technologies for the Moon-Mars program, the agency is not investing in the development of the mid-TRL technologies needed for Origins Science. We suspect that this problem is common to all of Space and Earth Science. **We recommend that SScAC and its successor committee consider this issue.**

John Mather reported on continued progress in developing JWST, one of the key flagship missions for the Origins program and the top rated program in the current decadal survey. Mather reported that there have been significant delays in obtaining approval for the use of the Ariane. Further delay may begin to have schedule impact. If use of the Ariane is not approved, then this will have a major budgetary impact on this vital program. **The Origins Committee recommends that the SScAC urge NASA to work with other agencies to accelerate the launch approval process.**

Paul Hertz reported on the current status of the Explorer program. Headquarters plans to select 2 SMEXs in November 2004 and then issue an AO in November 2005. **As the Explorer program has been one of NASA's most cost effective, we hope that the**

**program will be restored to full funding so that there are no more lost launch opportunities.**

## **TPF and SIM**

The Origins Committee received an update on the Navigator program from Michael Devirian and on two of its key components, SIM and TPF, from Michael Shao and Chas Beichman. Michael Shao reported that SIM continues to make progress towards meeting all of its demanding technology goals.

Anne Kinney and Chas Beichman described plans to restructure the TPF program. The rapid progress in developing laboratory technologies needed for coronagraphy has given NASA the capability of detecting Earthlike planets around nearby stars within the next decade. The new plan for the TPF program is to launch two missions: TPF-C, a 3 x 6 meter coronagraphic optical telescope, and TPF-I, an infrared interferometric mission. TPF-C will be launched first and will also have significant capabilities for astronomical imaging. TPF-I is potentially a collaborative mission with the Europeans. The combination of TPF-C and TPF-I will be able to characterize the atmospheric properties of nearby Earth-like planets and infer the presence of life.

**The Origins Committee is enthusiastic about achieving the goals of TPF, detecting and characterizing Earth-like planets, and endorses the proposed revision in the plan. We strongly recommend that TPF-C include two auxiliary science instruments to maximize science return. We strongly endorse competing all possible components of TPF-C to encourage a broad range of capabilities. TPF-I will be the next step in the roadmap beyond TPF-C.**

**Anne Kinney reported on plans to compete the TPF science center in 2006. The Origins Committee applauds the decision to compete this center and encourages NASA to select all of its science centers through competitive processes.**

## **SOFIA**

Tom Greene, members of the SOFIA science working group, and the SOFIA science team reported on the current status of the SOFIA mission. The OS is enthusiastic about SOFIA's unique range of instruments that will result in exciting Origins science in under-explored portions of the electro-magnetic spectrum. The 25-year baseline of SOFIA allows for instrumentation upgrades as technology advances. Because of various development delays and unanticipated cost increases (due to a combination of changing FAA certification rules, fuel and salary run-ups, as well as full-cost accounting), SOFIA is over budget and as a consequence does not have the funds needed to operate the mission as a facility-class telescope. The SOFIA science community is eager to operate in this more productive mode rather than as an observatory with only PI-class instruments. In particular this means having the ability to support observers through personnel at the

SOFIA science center, documentation, and a data archive, none of which were in the original contracts.

**The Origins Committee recommends beginning SOFIA operation as soon as possible. We do not endorse request for supplemental '05 funding but await results of NASA review and will evaluate SOFIA's role as part of roadmapping process**

### **NASA Restructuring**

Ed Weiler presented a report on the status of Space Science and NASA plans for reorganization. The Origins Committee warmly thanks Ed Weiler for his leadership as Associate Administrator for Space Science and looks forward to continuing to work with him as he takes on his new responsibilities as head of Goddard Space Flight Center. We also look forward to working with Al Diaz, the new head of the Science Directorate.

As part of NASA restructuring, the Origins Committee will be merged with the SEUS committee. We look forward to working with our SEUS colleagues in supporting the new Universe Division.

Sincerely yours,

David Spergel for the Astronomical Origins Committee